



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/580,459	05/24/2006	Anne-Marie Caminade	1004900-000277	5519

21839 7590 08/04/2009
BUCHANAN, INGERSOLL & ROONEY PC
POST OFFICE BOX 1404
ALEXANDRIA, VA 22313-1404

EXAMINER

DOLLINGER, MICHAEL M

ART UNIT	PAPER NUMBER
----------	--------------

1796

NOTIFICATION DATE	DELIVERY MODE
-------------------	---------------

08/04/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

ADIPFDD@bipc.com

Office Action Summary	Application No. 10/580,459	Applicant(s) CAMINADE ET AL.	
	Examiner MIKE DOLLINGER	Art Unit 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 54-106 is/are pending in the application.
- 4a) Of the above claim(s) 89-106 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 54-88 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>06/16/2009</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. The indicated allowability of claims 58, 59, 63-69, 74-78 and 84 is withdrawn in view of the newly discovered reference(s) to Caminade et al (FR 2734268 A1).

Rejections based on the newly cited reference(s) follow.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Art Unit: 1796

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 54, 55, 58, 59, 61-66, 68-70, 72, 75-77 and 80-84 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 60, 62-73, 75-78, 80-83 and 88 of copending Application No. 10/580422. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope of the instant claims lies within the scope of the copending claims and so the instant claims anticipate the copending claims. It is clear that all the elements of the copending claims are to be found in the instant claims as the copending claims fully encompass the instant claims. The difference between the copending claims and the instant claims is that the instant claims contain more elements and thus outline a more specific invention. Thus the invention of the instant claims is in effect a "species" of the "generic" invention of the copending claims. It has been held that the generic invention is "anticipated" by the "species". See *In re Goodman*, 29 USPQ2d 2010 (Fed. Cir. 1993). Since the copending claims are anticipated by the instant claims, they are not patentably distinct from the copending claims.

Instant claim	Corresponding Copending Claim
54	60
55	64
56	-
57	-
58	62
59	63
60	-
61	68
62	67

Art Unit: 1796

63	69
64	70
65	71
66	72
67	-
68	75
69	76
70	77
71	-
72	78
73	-
74	-
75	80
76	82
77	83
78	-
79	-
80	88
81	65
82	66
83	73
84	81
85	-
86	-
87	-
88	-

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

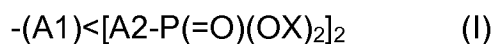
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 54-57, 60-62, 70-73, 79, 80, 83, 87 and 88 are rejected under 35 U.S.C. 102(b) as being anticipated by Killat et al. (US 4,871,779).

Art Unit: 1796

4. Regarding claim 54, applicants claim a dendritic polymer of generation 0 to 12, a central core of valence of 1 or more, generation and optionally intermediate chains, a terminal group at the end of each intermediate chain represented by the formula (I):



wherein A1 represents the radical --CR< or -Heteroatom<; the radicals A2, which are identical or different, each independently of the other represents a single bond or a linear or branched hydrocarbon chain having from 1 to 6 chain members; X represents a radical -alkyl, -Aryl, -H or /M where M is a cation. Killat et al. disclose dense star polymers (column 2 lines 26-27) with at least one dendritic branch (column 2 line 27), at least two terminal ion exchange moieties on each dendritic branch (column 2 lines 28-29) that is preferably phosphonate or phosphonium (column 6 lines 58-61). The dendritic polymer may have a PAMAM (polyamidoamine) structure, a ternary or trivalent core molecule, and second generation dendritic branches (column 10 lines 15-18). The biphosphonic terminals can be added through the direct reaction of the --NH₂ ends of the dendrons with chloromethylphosphonate (column 7 lines 19-24). This dendritic polymer would have a core valence of 3 or 4; generation of 2; A1< is the radical N<; X is H; and A2 is methyl.

5. Regarding claim 55, applicants claim a dendritic polymer having a structure of the DAB, PAMAM, or PMMH type. Killat et al. disclose a dendritic polymer of the PAMAM type (column 10 lines 15-16).

6. Regarding claim 56, applicants claim the dendritic polymer wherein A1 represents the radical -CH< or -N<. Killat et al. disclose a dendritic polymer that is

Art Unit: 1796

biphosphonated by directly reacting the -NH_2 end of the dendrons with chloromethylphosphonate (column 7 lines 19-24); this dendritic polymer will have terminals wherein A1 is the radical -N< .

7. Regarding claim 57, applicants claim a dendritic polymer wherein A2 represents -Me- . Killat et al. disclose a dendritic polymer that is biphosphonated by directly reacting the -NH_2 end of the dendrons with chloromethylphosphonate (column 7 lines 19-24); this dendritic polymer will have terminals wherein A2 is an -Me- .

8. Regarding claim 60, applicants claim a dendritic polymer with a core with valence 1 to 8. Killat et al. disclose a core molecule with a valence from 2 to about 2,300 (column 10 lines 47-48).

9. Regarding claim 61, applicants claim a dendritic polymer with a core with valence 3, 4 or 6. Killat et al. disclose a core molecule that is ternary or trivalent (column 10 line 15).

10. Regarding claim 62, applicants claim a dendritic polymer with 0 to 2 generations. Killat et al. disclose a dendritic polymer with 2 to 6 generations (column 10 line 64).

11. Regarding claims 70-73, 79, 80, 87 and 88, applicants claim formulae of the dendritic polymer generation and intermediate branches that applicants have admitted are commercially available and anticipated by PAMAM dendritic polymers (page 17 2nd paragraph of specification). Henceforth the dendritic polymers of Killat et al., being of PAMAM structure and having biphosphonic terminals, anticipate these claims.

Art Unit: 1796

12. Claims 54, 55, 58-61, 63-69, 74-78, 83 and 84 are rejected under 35 U.S.C. 102(b) as being anticipated by Caminade et al (FR 2734268 A1) hereinafter referred to as Caminade '268.

13. Caminade '268 discloses, in Examples 4-6, 11 and 12, several dendrimers with phosphonic terminals. The Examples include 10-generational [Examples 4-6] and 4-generational [Examples 11 and 12] with PMMH generational chains [Figures 1 and 2]. The ultimate generation reads on the intermediate chains of the claims. The PMMH chains read on the generational chains of claims 63-69 wherein A represents an oxygen atom, B represents a phenyl radical, D represents a hydrogen atoms, E represents a methyl radical, and G represents a sulfur radical [Figures 1 and 2; page 24 lines 13]. The PMMH chains also read on the intermediate chains of claims 74-78 wherein J represents an oxygen atom, K represents a phenyl radical, D represents a hydrogen atom, E represents a methyl radical, Alk represents a methylene radical and a represents 1 or 2 [Figures 1, 2, 6 and 13]. The core molecule is $S=P\equiv$ radical [page 24 lines 6-9]. The various terminal groups of Caminade '268 include ones in which: A1 is represented by $-P(=S)<$, A2 is represented by a 6 membered hydrocarbon chain, and X is a phenyl group [Figure 6]; A1 is represented by $-P(=S)<$, A2 is represented by a 5 membered hydrocarbon chain, and X is a phenyl group [Figure 8], A1 is represented by $-P(=S)<$, A2 is represented by a 4 membered hydrocarbon chain, and X is an ethyl group [Figure 12]; A1 is represented by $-P(=S)<$, A2 is represented by a 6 membered hydrocarbon chain, and X is an ethyl group [Figure 13]; and A1 is represented by $-P(=S)<$, A2 is represented by a 3 membered hydrocarbon chain, and X is an ethyl group

Art Unit: 1796

[Figure 14]. Caminade '268 discloses that the core molecule may be derived from $O=PCl_3$, $S=PCl_3$ or $P_3N_3Cl_6$ [page 15 lines 23-26] which reads on the core molecule of claim 59.

Allowable Subject Matter

14. Claims 81, 82, 85 and 86 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

15. Caminade '268 and Killat represent the closest prior art to the allowable claims. Neither Caminade '268 or Killat disclose a combination of the specific combination of generational and intermediate chains of claims 85 or 86 nor is there any suggestion or motivation to prepare a dendrimer of this particular combination. Caminade '268 and Killat also do not disclose phosphonate terminals with cationic elements or a nitrogen containing base in the phosphonate groups nor is there any suggestion of motivation to prepare a dendrimer with these particular phosphonate groups.

Response to Arguments

16. Applicant's arguments filed 06/16/2009 have been fully considered but they are not persuasive. Applicants argue that since the ultimate generation chain or the moieties connecting the generation chains to the terminal groups ($-Z$ or YNH_2) are considered as an intermediate chain, than the dendrimers of Killat have two intermediate chains in Examiner's interpretation. This is a correct reading of Examiner's

Art Unit: 1796

interpretation of Killat. Applicants argue that this interpretation is inconsistent with the wording of the present claims because claim 54 requires “an intermediate chain” and henceforth only one intermediate chain may be attached to the generation chains. This argument is not convincing because Applicant is not considering the broadest reasonable interpretation of the claim language. The claims require “an intermediate chain” which is read as “at least one intermediate chain” at the end of each generation chain; “an intermediate chain” does not mean “one and only one intermediate chain”. Furthermore, Applicants’ arguments are not consistent with dependent claims. Claims 85 and 86 claim dendrimers that have two intermediate chains attached to the ultimate generation chain; this is inconsistent with Applicants’ arguments. Claims 87 and 88 claim a dendrimer having only one type of dendritic chain and with two chains propagating from each generation. Presumably the generation and intermediate chains are identical and the dendrimers of claims 87 and 88 are similar (or identical) to the dendrimers of Killat but inconsistent with Applicants’ arguments.

Conclusion

Applicant's submission of an information disclosure statement under 37 CFR 1.97(c) with the fee set forth in 37 CFR 1.17(p) on 06/16/2009 prompted the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 609.04(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MIKE DOLLINGER whose telephone number is (571)270-5464. The examiner can normally be reached on M-F 9-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on 571-272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1796

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/mmd/

/Randy Gulakowski/
Supervisory Patent Examiner, Art Unit 1796